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08/879,322	06/20/1997	ALLAN S. HODGSON	14136	9388

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EXAMINER

DASTOURI, MEHRDAD

ART UNIT	PAPER NUMBER
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2623

DATE MAILED: 05/31/2002

32

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

08/879,322

Applicant(s)

HODGSON ET AL.

Examiner

Mehrdad Dastouri

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 March 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 12-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 12-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

Response to Amendment

1. Applicants' amendment filed, March 11, 2002, has been entered and made of record.
2. Applicants' arguments with regards to Claims 1-10 and 12-20 have been fully considered, but they are moot in view of new grounds of rejection.

Regarding Applicants' arguments concerning an earlier submitted declaration under Rule 131, please refer to the response in previous office Actions (Papers 16 and 23).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 3-6 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Queisser et al (U.S. 5,818,953) in view of Wilkinson et al (U.S. 4,844,937).

Regarding Claim 1, Queisser et al disclose an apparatus for measurement of the fruit particles comprising:

a substantially opaque cabinet (Figure 1; Column 3, Lines 63-67, Column 4, Lines 1-3); a sample tray adapted to receive a fruit particle (Figure 1; Column 5, Lines 34-41. The inspection tray serves as a container for receiving fruit particles); a camera in the upper portion of said cabinet

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for taking an image of the fruit particles (Figure 1; Column 4, Lines 14-16); a light source in said cabinet (Figure 1; Column 4, Lines 21-22); and a computer with image analyzing software (Figure 2; Column 4, Lines 27-67, Column 5, Lines 1-11). Queisser et al disclose the sample tray adapted to receive a fruit matrix (Figures 1 and 4A-B. Tray 56 receives a matrix (two-dimensional arrangement) of food products.).

Queisser et al do not disclose the sample tray adapted to receive a fruit matrix selected from a starch matrix or a sugar matrix, said fruit matrix used in fruit fillings or cooked food products. Measurement of the fruit particles in a matrix without removing the fruit particles from the matrix is well known in the art as disclosed by Wilkinson et al.

Wilkinson et al disclose the process of measurement of the snack food half products made from corn materials in a uniform starch matrix of horny endosperm of the corn kernel by evaluating the micrograph images of the starch matrix of the cooked corn (Figures 2B-2C; Examples 1-3; Column 5, Lines 48-56; Column 11, Lines 6-36).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Queisser et al invention in accordance with the teachings of Wilkinson et al for taking an image of fruit particles and analyzing the image while the fruit particles are remaining within the fruit matrix, wherein the fruit matrix is selected from a matrix used in fruit fillings, toppings, dairy products or cooked food products because it will expand the versatility of the measurement of the food particles and will encompass the inspection of a large

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variety of the products in food industry by merely implementing the conventional image processing.

Regarding Claim 3, Queisser et al further disclose an apparatus for measurement of the fruit particles in a matrix wherein the light source comprises an incident light source within the cabinet ((Figure 1; Column 4, Lines 21-22).

Regarding Claim 4, Queisser et al do not specifically disclose the apparatus of Claim 1 wherein the light source comprises switches for adjusting the intensity of the light. Light sources are inherently incorporated with switches for turning the lights on and off. Alternatively, utilizing switches for adjusting the intensity of a light in a predetermined range is extremely well known in the art (Official Notice.). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Queisser et al and Wilkinson et al combination to provide an apparatus for measurement of the fruit particles in a matrix wherein the light source comprises switches for adjusting the intensity of the light because it will provide the capability of obtaining different images of samples under various illumination conditions for enhancing image quality and increasing measurement accuracy.

Regarding Claim 5, Queisser et al disclose the apparatus of Claim 1 wherein the light source comprises multiple light-producing sources (Figure 1; Column 5, Lines 52-57). Queisser et al do not explicitly disclose the apparatus of Claim 1 comprising independently-adjustable light-producing sources. Light sources are inherently incorporated with switches for turning the lights on and off. Alternatively, utilizing switches for adjusting the intensity of lights in a

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predetermined range is extremely well known in the art (Official Notice.). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Queisser et al and Wilkinson et al combination to provide an apparatus for measurement of the fruit particles in a matrix wherein the light source comprises switches for adjusting the intensity of the light because it will provide the capability of obtaining different images of samples under various illumination conditions for enhancing image quality.

Regarding Claim 6, Queisser et al do not explicitly disclose the apparatus of Claim 1 wherein the inside of the cabinet is non-reflecting. Characteristics of the inside surface of a cabinet is the decision based upon designer's preference. Appropriate painting of the inside of a cabinet will result in a non-reflecting surface routinely practiced in the art (Official Notice). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Queisser et al and Wilkinson et al combination to provide a cabinet with non-reflecting inside surface because it will minimize light scattering inside the cabinet and will prevent degrading of the image quality due to light scattering.

With regards to Claim 12, arguments analogous to those presented for Claim 1 are applicable to Claim 12. Queisser et al further disclose illuminating the food particles so that an image may be obtained in which food particles are distinguishable from the background (Column 5, Lines 50-65); capturing a computer-readable image of at least a portion of said illuminating fruit particles (Figure 3, Step 70); and using a computer and an image analyzing software

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program to analyze said image and obtain information concerning said fruit particles (Figures 2 and 3; Column 13, Lines 4-60, Column 14, Lines 1-8).

5. Claims 2, 7-10, 13, 14, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable by Queisser et al (U.S. 5,818,953) further in view of Wilkinson et al (U.S. 4,844,937) and Bole et al (U.S. 5,546,475).

Regarding Claim 2, neither Queisser et al nor Wilkinson et al disclose the apparatus of Claim 1 wherein said light source comprises a light box in the lower portion of said cabinet. Bole et al disclose a produce recognition system wherein the light source comprises a light box in the lower portion of the cabinet (Figure 4; Column 9, Lines 29-50). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Queisser et al and Wilkinson et al combination according to the teachings of Bole et al to provide a light box in the lower portion of the cabinet to enclose the lighting fixtures because it will protect the lights against undesirable environmental conditions and mechanical damages.

Regarding Claim 7, neither Queisser et al nor Wilkinson et al disclose the apparatus of Claim 1 wherein the sample tray comprises a light-transmitting bottom. Bole et al disclose a sample tray comprising light transmitting bottom (FIG. 4, Transparent support 405; Column 9, Lines 44-46). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Queisser et al and Wilkinson et al combination according to the teachings of Bole et al to provide a light transmitting (transparent) tray for supporting fruit particles in a matrix because it is a conventional method of illuminating materials on a

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translucent support routinely implemented in the art that will provide capability of illuminating the fruit particles in the tray for further image processing.

Regarding Claim 8, Queisser et al, Wilkinson et al and Bole et al do not disclose the apparatus of Claim 2 wherein said apparatus further comprises a light box cover. Configuration of the internal parts of the cabinets is based upon the discretion of the designer. The cover for an internal component such as a light box is considered one of the basic elements in construction of the cabinets (Official Notice). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Queisser et al, Wilkinson et al and Bole et al combination to provide a cabinet with cover for the light box because it will enclose components with distinct functions in separate segments and will protect the components against undesirable environmental conditions and mechanical damages.

Regarding Claim 9, Queisser et al further disclose an apparatus for measurement of the fruit particles in a matrix wherein the apparatus further comprises a sample tray guide (Figure 1; Column 4, Lines 10-14).

With regards to Claim 10, arguments analogous to those presented for Claims 1, 4, 6 and 7 are applicable to Claim 10.

Regarding Claim 13, neither Queisser et al nor Wilkinson et al disclose the process of Claim 12 wherein said illuminating of the fruit particles in a matrix is from below the sample tray, and said illuminating is therethrough in obtaining said image. Bole et al disclose a produce recognition system wherein illuminating the particles in a matrix is from below the sample tray,

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and said illuminating is therethrough in obtaining said image (Figure 4, light source 110, transparent support 405; Column 9, Lines 39-51). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Queisser et al and Wilkinson et al combination in accordance with Bole et al teachings to illuminate the fruit particles in a matrix from below the sample tray, and the illuminating is therethrough in obtaining said image because it is a conventional method of illuminating materials on a translucent support routinely implemented in the art.

Regarding Claim 14, Bole et al further disclose a produce recognition system wherein the illuminating is from below only (Figure 4, Light 110; Column 9, Lines 29-37. As depicted in Figure 4, illuminating is from below only. The transparent support 405 is not illuminated both from above and from below.).

With regards to Claim 17, arguments analogous to those presented for Claim 13 are applicable to Claim 17.

With regards to Claim 18, arguments analogous to those presented for Claim 14 are applicable to Claim 18.

6. Claims 15 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable by Queisser et al (U.S. 5,818,953) further in view of Wilkinson et al (U.S. 4,844,937) and Sister et al (U.S. 4,975,863).

Regarding Claim 15, neither Queisser et al nor Wilkinson et al disclose the process of Claim 12 wherein the placing occurs spatially between the illuminating location and the

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capturing location. Sister et al disclose a system and process for analysis of particles wherein placing a sample tray occurs spatially between the illuminating location and the capturing location (Figure 5. Transparent plate 23 is located between light source 28 and camera 15.). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Queisser et al and Wilkinson et al combination in accordance with Sister et al teachings to place a sample tray spatially between the illuminating location and the capturing location because it is a standard procedure for holding the fruit particles for capturing the particles image routinely implemented in the art.

With regards to Claim 19, arguments analogous to those presented for Claim 15 are applicable to Claim 19.

7. Claims 16 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable by Queisser et al (U.S. 5,818,953) further in view of Wilkinson et al (U.S. 4,844,937), Sister et al (U.S. 4,975,863) and Bole et al (U.S. 5,546,475).

Regarding Claim 16, Queisser et al, Wilkinson et al and Sister et al do not disclose the process of Claim 15 wherein the illuminating has no source which is between the sample tray and the capturing location. Bole et al disclose a produce recognition system wherein the illuminating has no source which is between the sample tray and the capturing device (Figure 4. As depicted in Figure 4, there is no illuminating source between Camera 120 and Tray 403.). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Queisser et al, Wilkinson et al and Sister et al combination in accordance with Bole et al

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teachings to consider no illuminating source which is between the sample tray and the capturing device because it will simplify illumination system and will prevent scattered illumination problems.

With regards to Claim 20, arguments analogous to those presented for Claim 16 are applicable to Claim 20.

8. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable by Heck et al (U.S. 5,845,002) further in view of Wilkinson et al (U.S. 4,844,937) and Sister et al (U.S. 4,975,863).

Regarding Claim 1, Heck et al disclose an apparatus for measurement of the fruit particles comprising:

a substantially opaque cabinet (Figures 1 and a, optic housing 16; Column 7, Lines 65-67); a camera in the upper portion of said cabinet for taking an image of the fruit particles (Figures 1 and a, camera 30; Column 8, Lines 53-57); a light source in said cabinet (Figures 1 and a, light sources 22 and 24; Column 8, Lines 16-20); a device for holding the fruit (Figures 1 and a, inspection station 18; Column 7, Lines 65-67); and a computer with image analyzing software (Figure 1, computer 34; Column 9, Lines 6-21). Heck et al does not specifically disclose a sample tray adapted to receive fruit particles. Sister et al disclose a particle examination system comprising a sample tray for supporting fruit particles (Figure 5, sample tray 23). Neither Heck et al nor Sister et al disclose the sample tray adapted to receive a fruit matrix selected from a starch matrix or a sugar matrix, said fruit matrix used in fruit fillings or cooked food products.

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Measurement of the fruit particles in a matrix without removing the fruit particles from the matrix is well known in the art as disclosed by Wilkinson et al.

Wilkinson et al disclose the process of measurement of the snack food half products made from corn materials in a uniform stark matrix of horny endosperm of the corn kernel by evaluating the micrograph images of the starch matrix of the cooked corn(Figure c; Examples 1-3; Column 5, Lines 48-56; Column 11, Lines 6-36).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Heck et al and Sister et al combination in accordance with the teachings of Wilkinson et al for taking an image of fruit particles and analyzing the image while the fruit particles are remaining within the fruit matrix, wherein the fruit matrix is selected from a matrix used in fruit fillings, toppings, dairy products or cooked food products because it will expand the versatility of the measurement of the food particles and will encompass the inspection of a large variety of the products in food industry by merely implementing the conventional image processing.

Regarding Claim 2, Heck et al further disclose the apparatus of Claim 1 wherein said light source comprises a light box in the lower portion of said cabinet (Figures 1 and a, light sources 22 and 24).

Regarding Claim 3, Heck et al further disclose an apparatus for measurement of the fruit particles wherein the light source comprises an incident light source within the cabinet (Figure a, light sources 22 and 24).

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Regarding Claim 4, Heck et al, Sister et al and Wilkinson et al do not specifically disclose the apparatus of Claim 1 wherein the light source comprises switches for adjusting the intensity of the light. Light sources are inherently incorporated with switches for turning the lights on and off. Alternatively, utilizing switches for adjusting the intensity of a light in a predetermined range is extremely well known in the art (Official Notice.). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Heck et al, Sister et al and Wilkinson et al invention to provide an apparatus for measurement of the fruit particles in a matrix wherein the light source comprises switches for adjusting the intensity of the light because it will provide the capability of obtaining different images of samples under various illumination conditions for enhancing image quality and increasing measurement accuracy.

Regarding Claim 5, Heck et al disclose the apparatus of Claim 1 wherein the light source comprises multiple light-producing sources (Figure a, light sources 22 and 24). Heck et al, Sister et al and Wilkinson et al do not explicitly disclose the apparatus of Claim 1 comprising independently-adjustable light-producing sources. Light sources are inherently incorporated with switches for turning the lights on and off. Alternatively, utilizing switches for adjusting the intensity of lights in a predetermined range is extremely well known in the art (Official Notice.). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Heck et al, Sister et al and Wilkinson et al invention to provide an apparatus for measurement of the fruit particles in a matrix wherein the light source comprises switches for adjusting the intensity of the light because it will provide the capability of obtaining different

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images of samples under various illumination conditions for enhancing image quality and increasing measurement accuracy.

Regarding Claim 6, Heck et al, Sister et al and Wilkinson et al do not disclose the apparatus of Claim 1 wherein the inside of the cabinet is non-reflecting. Characteristics of the inside surface of a cabinet is the decision based upon designer's preference. Appropriate painting of the inside of a cabinet will result in a non-reflecting surface routinely practiced in the art (Official Notice). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Heck et al, Sister et al and Wilkinson et al invention to provide a cabinet with non-reflecting inside surface because it will minimize light scattering inside the cabinet and will prevent degrading of the image quality due to light scattering.

Regarding Claim 7, Sister et al further disclose the apparatus of Claim 1 wherein the sample tray comprises a light-transmitting bottom (Column 6, Lines 2-8).

Regarding Claim 8, Heck et al, Sister et al and Wilkinson et al do not disclose the apparatus of Claim 2 wherein said apparatus further comprises a light box cover. Configuration of the internal parts of the cabinets is based upon the discretion of the designer. The cover for an internal component such as a light box is considered one of the basic elements in construction of the cabinets (Official Notice). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Heck et al, Sister et al and Wilkinson et al invention to provide a cabinet with cover for the light box because it will enclose components

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with distinct functions in separate segments and will protect the components against undesirable environmental conditions and mechanical damages.

Regarding Claim 9, Heck et al, Sister et al and Wilkinson et al do not disclose an apparatus for measurement of the fruit particles wherein the apparatus further comprises a sample tray guide. Configuration of the internal parts of the cabinets is based upon the discretion of the designer. Conventionally, cabinets are manufactured of modular parts. A cover with guides for installation of another component like a tray is considered one of the normal elements in composite modular structure of the cabinets, and has been frequently installed in electrical distribution boards (Official Notice). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Heck et al, Sister et al and Wilkinson et al invention to provide a cabinet with a sample tray guide because it is the conventional part for the installation of the removable components.

With regards to Claim 10, arguments analogous to those presented for Claims 1, 4, 6 and 7 are applicable to Claim 10.

With regards to Claim 12, arguments analogous to those presented for Claim 1 are applicable to Claim 12. Sister et al further disclose illuminating the food particles so that an image may be obtained in which food particles are distinguishable from the background (Column 3, Lines 16-22); capturing a computer-readable image of at least a portion of said illuminating fruit particles (Figure 1; Column 3, Lines 23-36); and using a computer and an image analyzing

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software program to analyze said image and obtain information concerning said fruit particles (Figure 1; Column 3, Lines 37-49).

Regarding Claim 13, Sister et al further disclose the process of Claim 12 wherein said illuminating of the fruit particles in a matrix is from below the sample tray, and said illuminating is therethrough in obtaining said image (Figure 5; Column 6, Lines 2-8).

Regarding Claim 14, Heck et al further disclose the process of Claim 13 wherein the illuminating is from below only (Figure a, Lights 22 and 24. As depicted in Figure a, illuminating is from below only.).

Regarding Claim 15, Sister et al disclose the process of Claim 12 wherein the placing occurs spatially between the illuminating location and the capturing location (Figure 5. Transparent plate 23 is located between light source 28 and camera 15.).

Regarding Claim 16, Heck et al further disclose the process of Claim 15 wherein the illuminating has no source which is between the sample tray and the capturing location (Figure a. There is no source between camera 30 and station 18 which is utilized as a supporting tray.).

With regards to Claim 17, arguments analogous to those presented for Claim 13 are applicable to Claim 17.

With regards to Claim 18, arguments analogous to those presented for Claim 14 are applicable to Claim 18.

With regards to Claim 19, arguments analogous to those presented for Claim 15 are applicable to Claim 19.

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With regards to Claim 20, arguments analogous to those presented for Claim 16 are applicable to Claim 20.

Contact Information

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mehrdad Dastouri whose telephone number is (703) 305-2438.

The examiner can normally be reached on Monday through Friday from 8:00 a.m. to 4:30 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au, can be reached at (703)308-6604.

Any response to this action should be mailed to:

Commissioner for Patents
Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for *formal* communications; please mark "EXPEDITED PROCEDURE"); (for *informal* or *draft* communications, please label "PROPOSED" or "DRAFT")

Hand delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application should be directed to the Technology Center Customer service Office whose telephone number is (703)306-0377.



Mehrdad Dastouri
Patent Examiner
Group Art Unit 2623
May 28, 2002